



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,098	09/15/2003	Tsvika Kurts	P17694	1638

25694 7590 08/18/2006

INTEL CORPORATION
P.O. BOX 5326
SANTA CLARA, CA 95056-5326

EXAMINER

SURYAWANSHI, SURESH

ART UNIT	PAPER NUMBER
----------	--------------

2115

DATE MAILED: 08/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/663,098

Applicant(s)

KURTS ET AL.

Examiner

Suresh K. Suryawanshi

Art Unit

2115

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-41 are presented for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7, 12, 14, 21-32, 35 and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al (US Patent 6,385,735¹; hereinafter Wilson) in view of Hsu et al (US Patent 6,175,929; hereinafter Hsu).

4. As per claim 1, Wilson discloses an apparatus comprising:

a memory element in a processor to supply a configured clock rate setting for use by a peripheral set [Fig. 1 and 2; col. 4, lines 8-12; a frequency limiting fuse that can be used by any peripheral set connected to the system motherboard];

an input element in the processor to receive a feedback clock rate setting from the peripheral set [Fig. 1 and 2; col. 3, lines 30-34, 52-55; frequency selecting circuit]; and

a comparison unit in the processor to compare the configured clock rate setting and the feedback clock rate setting to detect over-clocking of the processor [Fig. 1 and 2; col. 30-34; col. 4, lines 45-63; comparator circuit].

Wilson does not expressly disclose that the processor tells the motherboard what clock rate to use. However, Hsu clearly discloses that the processor is in charge of the operation of the entire computer main board and the processor communicates with peripherals about the clock frequency [col. 5, lines 8-20, 38-50; col. 6, lines 25-28]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references as both are directed for setting a clock of a computer main board by a processor. Moreover, Wilson in view of Hsu does not have to expressly disclose that the processor supplies a configured clock rate setting for use by a peripheral set because it is obvious in a computer system as disclosed by Hsu.

5. As per claim 22, Wilson discloses a system comprising:

a processor [Fig. 1];

¹ Prior art cited by the examiner in the prior office action.

Art Unit: 2115

a clock generator to generate a clock signal for the processor based on a clock rate setting [Fig. 1 and 2]; and

a memory controller hub to supply a feedback clock rate setting based on a clock rate of the clock signal [Fig. 1 and 2; col. 3, lines 32-34; col. 3, line 52 -- col. 4, line 7; frequency selecting circuit; a memory controller hub is one of the many peripheral sets connected to the system motherboard];

said processor comprising a memory element to provide a configured clock rate setting for use by the clock generator [Fig. 1 and 2; col. 4, lines 8-12; a frequency limiting fuse], an input element to receive the feedback clock rate setting from the memory controller hub [Fig. 1 and 2; col. 3, lines 30-34, 52-55; frequency selecting circuit], and a comparison unit to compare the configured clock rate setting and the feedback clock rate setting to detect over-clocking of the processor [Fig. 1 and 2; col. 30-34; col. 4, lines 45-63; comparator circuit].

Wilson does not expressly disclose that the processor tells the motherboard what clock rate to use. However, Hsu clearly discloses that the processor is in charge of the operation of the entire computer main board and the processor communicates with peripherals about the clock frequency [col. 5, lines 8-20, 38-50; col. 6, lines 25-28]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references as both are directed for setting a clock of a computer main board by a processor. Moreover, Wilson in view of Hsu does not have to expressly disclose that the processor supplies

Art Unit: 2115

a configured clock rate setting for use by a peripheral set because it is obvious in a computer system as disclosed by Hsu.

6. As per claim 25, Wilson discloses a method comprising:

providing a configured clock rate setting from a processor for use by a peripheral set [Fig. 1 and 2; col. 4, lines 8-12; a frequency limiting fuse that can be used by any peripheral set connected to the system motherboard];

receiving a feedback clock rate setting at the processor from the peripheral set [Fig. 1 and 2; col. 3, lines 30-34, 52-55; frequency selecting circuit]; and

comparing the configured clock rate setting and the feedback clock rate setting to detect over-clocking of the processor [Fig. 1 and 2; col. 30-34; col. 4, lines 45-63; comparator circuit].

Wilson does not expressly disclose that the processor tells the motherboard what clock rate to use. However, Hsu clearly discloses that the processor is in charge of the operation of the entire computer main board and the processor communicates with peripherals about the clock frequency [col. 5, lines 8-20, 38-50; col. 6, lines 25-28]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references as both are directed for setting a clock of a computer main board by a processor.

Art Unit: 2115

Moreover, Wilson in view of Hsu does not have to expressly disclose that the processor supplies a configured clock rate setting for use by a peripheral set because it is obvious in a computer system as disclosed by Hsu.

7. As per claim 39, Wilson discloses

providing a configured clock rate setting from a processor for use by a peripheral set [Fig. 1 and 2; col. 4, lines 8-12; a frequency limiting fuse that can be used by any peripheral set connected to the system motherboard];

receiving a feedback clock rate setting at the processor from the peripheral set [Fig. 1 and 2; col. 3, lines 30-34, 52-55; frequency selecting circuit]; and

comparing the configured clock rate setting and the feedback clock rate setting to detect over-clocking of the processor [Fig. 1 and 2; col. 30-34; col. 4, lines 45-63; comparator circuit].

Wilson does not expressly disclose that the processor tells the motherboard what clock rate to use. However, Hsu clearly discloses that the processor is in charge of the operation of the entire computer main board and the processor communicates with peripherals about the clock frequency [col. 5, lines 8-20, 38-50; col. 6, lines 25-28]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited

Art Unit: 2115

references as both are directed for setting a clock of a computer main board by a processor.

Moreover, Wilson in view of Hsu does not have to expressly disclose that the processor supplies a configured clock rate setting for use by a peripheral set because it is obvious in a computer system as disclosed by Hsu.

8. As per claim 2, Wilson discloses that the memory element comprises at least one fuse [Fig. 2; col. 4, lines 8-12; frequency limiting fuses].

9. As per claim 3, Wilson discloses that the input element comprises at least one digital register [Fig. 1 and 2].

10. As per claims 4 and 23, Wilson discloses that a control unit in the processor to place the processor in a detected state if the comparison unit detects over-clocking [Fig. 2; col. 4, line 64 -- col. 5, line 15].

11. As per claim 5, Wilson discloses that a second memory element in the processor to store a detection enable setting [Fig. 2; col. 4, lines 45-63].

12. As per claim 6, Wilson discloses the invention substantially. Wilson does not disclose that the second memory to store the detection enable setting comprises a fuse. Wilson uses a register. However, Wilson expressly discloses using frequency limiting fuses and frequency

Art Unit: 2115

selecting fuses [Fig. 2]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a fuse instead a register to store the detection enable setting. Moreover, use of a fuse will definitely put down a computer system in a permanent shut down mode until the fuse is replaced. Thus, discouraging over clocking in a computer system.

13. As per claims 7, 24 and 32, Wilson discloses that the detected state comprises one of a low frequency mode and a shut down mode [col. 5, lines 5-15].

14. As per claim 12, Wilson discloses that the configured clock rate setting and the feedback clock rate setting each comprise digital codes of at least one bit each, and wherein the comparison unit comprises a digital comparator [Fig. 2 and 5; col. 4, lines 45-63; both the configured clock setting and the feedback clock rate setting provide 4-bit digital values].

15. As per claim 14, Wilson discloses that the peripheral set comprises at least one of a clock generator, a memory, an input/output interface, a memory controller hub, and an input/output controller hub [Fig. 1; a motherboard of a computer system contains a clock generator, a memory, an input/output interface, a memory controller hub, and an input/output controller hub and more].

16. As per claim 26, Wilson discloses that comparing comprises determining if the feedback clock rate setting is higher than the configured clock rate [Fig. 2; col. 4, lines 45-63].

Art Unit: 2115

17. As per claim 27, Wilson discloses that configuring a memory element in the processor with the configured clock rate setting prior to providing the configured clock rate setting [col. 4, lines 8-14].

18. As per claim 28, Wilson discloses that configuring the memory element comprises blowing at least one fuse [col. 4, lines 8-14].

19. As per claim 29, Wilson discloses that receiving the feedback clock rate setting comprises storing the feedback clock rate setting to a memory element in the processor for each reset of the processor [Fig. 1 and 2; col. 2, lines 53-62].

20. As per claims 30 and 40, Wilson discloses that placing the processor in a detected state if over-clocking is detected [Fig. 2; col. 4, lines 45-63].

21. As per claim 31, Wilson discloses asserting an enforce signal and a detecting signal and initiating the detected state [Fig. 2; col. 4, line 45 -- col. 5, line 50].

22. As per claim 35, Wilson discloses receiving a power-on-configuration signal [col. 2, lines 58-62; col. 4, line 64 -- col. 5, line 4].

23. As per claim 41, Wilson discloses

generating a clock signal at the peripheral set based on a clock rate setting [Fig. 1; processor clock frequency selection signal];

providing the clock signal from the peripheral set for use by the processor [Fig. 1 and 2];
and

generating the feedback clock rate setting based on a clock rate of the clock signal [Fig. 1 and 2; frequency selecting circuit].

24. Claims 8 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al (US Patent 6,385,735¹; hereinafter Wilson), Hsu et al (US Patent 6,175,929; hereinafter Hsu) in view of Pollock et al (US Patent 6,691,242¹; hereinafter Pollock).

25. As per claims 8 and 33, Wilson and Hsu disclose the invention substantially. Wilson and Hsu do not disclose outputting an over-clocking detection signal from the processor. However, Pollock clearly discloses warning a user of the computer system if the processor of the system is running at a greater speed than recommended under warranty [Fig. 1 and 3]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references as they are directed for detecting if a processor is being over clocked. Moreover, indication of such a warning will definitely help a user to know that the processor of the computer system has been over clocked.

Art Unit: 2115

26. Claims 9-11 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al (US Patent 6,385,735¹; hereinafter Wilson), Hsu et al (US Patent 6,175,929; hereinafter Hsu) in view of Watabe et al (US Patent 6,073,249¹; hereinafter Watabe).

27. As per claims 9-11 and 34, Wilson and Hsu disclose the invention substantially. Wilson and Hsu do not disclose expressly about use of a tri-state unit and a logic AND. But a routineer in the art would know about a tri-state unit and a logic AND as these are well known for their use. However, Watabe clearly discloses use of a tri-state unit and a logic AND [Fig. 2, 4 and 5; tri-state circuit 24 and logic AND 36]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references as they are directed to an information processing system and handling a failure in the information processing system. Moreover, a routineer would use well-known circuits in the art to keep both cost of the system and time to produce at minimum.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

28. Claims 15-21 and 36-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilson et al (US Patent 6,385,735; hereinafter Wilson).

29. As per claim 15, Wilson discloses an apparatus comprising:

a clock generator to generate a clock signal based on a clock rate setting [Fig. 1; col. 3, lines 5-6; a clock generation circuit], and said clock rate generator to provide the clock signal for use by a processor [Fig. 1; col. 3, lines 5-13], said processor having a configured clock rate setting [col. 5, lines 16-50; the processor manufacturer programs one or more of frequency limiting fuses to set the maximum clock frequency to prevent over clocking and remarking of processor]; and

a clock rate feedback unit to generate a feedback clock rate setting based on a clock rate of the clock signal [Fig. 1 and 2; col. 3, lines 32-34; col. 3, line 52 -- col. 4, line 7; frequency selecting circuit], and said clock rate feedback unit to provide the feedback clock rate back for use by the processor for comparison to the configured clock rate setting to detect over-clocking [Fig. 1 and 2; col. 30-34; col. 4, lines 45-63; comparator circuit].

30. As per claim 36, Wilson discloses a method comprising:

generating a clock signal at a peripheral set based on a clock rate setting [Fig. 1 and 2; col. 3, lines 5-6; a clock generation circuit; col. 4, lines 8-12; a frequency limiting fuse];

providing the clock signal from the peripheral set for use by a processor, said processor having a configured clock rate setting [Fig. 1 and 2; col. 3, lines 30-34, 52-55; frequency selecting circuit]; and

generating a feedback clock rate setting based on a clock rate of the clock signal for use by the processor for comparison to the configured clock rate setting to detect over-clocking [Fig. 1 and 2; col. 30-34; col. 4, lines 45-63; comparator circuit].

31. As per claim 16, Wilson discloses a circuit within the clock generator [inherent to the clock generator having a circuit]; a circuit within the processor [inherent to the processor having a circuit]; and a circuit within a memory controller hub [inherent to a memory controller having a circuit].

32. As per claim 18, Wilson discloses that the clock generator and the clock rate feedback unit comprise a peripheral set to couple with the processor [Fig. 1 and 2; motherboard].

33. As per claim 19, Wilson discloses that a memory element to store the clock rate setting during each reset of the processor [Fig. 2; frequency selecting fuses].

Art Unit: 2115

34. As per claim 20, Wilson discloses that a memory controller hub comprises at least one of the clock generator and the clock rate feedback unit; and a front side bus to couple the memory controller hub with the processor [Fig. 1; inherent to a computer system].

35. As per claim 21, Wilson discloses that said memory controller hub is to supply the processor with a power-on-configuration signal during each reset of the processor, said power-on-configuration signal comprising the feedback clock rate setting [Fig. 1 and 2; col. 4, line 64 -- col. 5, line 4].

36. As per claim 38, Wilson discloses storing the clock rate setting during each reset of the processor [col. 2, lines 53-62; col. 4, line 64 -- col. 5, line 4].

Claim Rejections - 35 USC § 103

37. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

38. Claim 17 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al (US Patent 6,385,735; hereinafter Wilson).

Art Unit: 2115

39. As per claims 17 and 37, Wilson discloses the invention substantially. Wilson does not expressly disclose that the clock rate feedback unit comprises one of a frequency measurement circuit to measure a frequency of the clock signal and a register to store a code indicating a current clock rate setting of the clock generator. However, as shown in Fig. 2, comparator circuit needs to know about the current clock rate of the clock generator and it is fed through the frequency selecting circuit 40. Thus, there may be a frequency measurement circuit to measure the frequency of the clock signal from the clock generator and a register to store a code indicating it [4-bit digital value; col. 4, lines 45-63]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a frequency measurement circuit and store the measurement in a memory location accessible by the comparator.

Response to Arguments

40. Applicant's arguments with respect to claims 1-14, 22-35 and 39-41 have been considered but are moot in view of the new ground(s) of rejection.

41. Applicant's arguments filed on 06/19/2006 with respect to claims 15-21 and 36-38 have been fully considered but they are not persuasive.

Art Unit: 2115

42. In the remarks, applicants argued in substance that (1) Wilson does not suggest, disclose, or enable “a memory element in a processor to supply a configured clock rate setting for use by a peripheral set.”

43. As to point (1), independent claims 15 and 36 do not claim a memory element in a processor to supply a configured clock rate setting for use by a peripheral set. Therefore, the rejection provided by the examiner in the previous office action still stands as Wilson anticipates the claims.

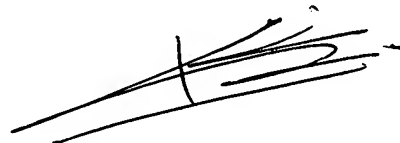
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suresh K. Suryawanshi whose telephone number is 571-272-3668. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2115

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, consisting of stylized, overlapping strokes that form the letters 'S', 'K', and 'S'.

SURESH K SURYAWANSHI